

WHAT IS CLAIMED IS:

1. A disc drive device supporting at least two types of reading speeds, a high speed and a low speed, capable of driving a DVD-format disc, reading data from the disc by following a read instruction from a host section, and sending the read data to the host section, the disc drive device comprising:

a processing section operable to read, from the disc at one of the reading speeds, the data corresponding to the read instruction, and additional information related to the data;

a determining section operable to determine, based on the additional information, whether the read data is Real-time data;

a storage section operable to temporarily store the read data; and

a sending section operable to send the data stored in the storage section to the host section in predetermined playback timing, wherein

when the reading speed is currently the low speed, the processing section keeps the reading speed while the determining section determines that the read data is Real-time data.

2. The disc drive device according to claim 1, wherein when the reading speed is currently the high speed, the processing section changes the reading speed to the low speed when

the determining section determines, successively for a  
5 predetermined number of times, that the read data is the Real-time  
data.

3. The disc drive device according to claim 1, wherein  
when the reading speed is currently the high speed, the  
processing section changes the reading speed to the low speed when  
a data read error occurs.

4. The disc drive device according to claim 1, wherein  
when the reading speed is currently the high speed, the  
processing section changes the reading speed to the low speed  
after a data read error occurs and then a predetermined condition  
5 is satisfied.

5. The disc drive device according to claim 4, wherein  
the predetermined condition is whether data reading has  
been carried out for a predetermined number of times.

6. The disc drive device according to claim 4, wherein  
the predetermined condition is whether data reading has  
been carried out for a predetermined period.

7. The disc drive device according to claim 1, wherein  
when the reading speed is currently the low speed, the

processing section changes the reading speed to the high speed when the determining section determines that the read data is not the Real-time data and when a predetermined condition is satisfied.

8. The disc drive device according to claim 1, wherein when the disc is a DVD-RAM disc and the reading speed is currently the low speed, the processing section changes, under a predetermined condition, the reading speed to the high speed while a reading head is passing through a gap specified in DVD-RAM specifications, even though the determining section determines that the read data is the Real-time data.

9. The disc drive device according to claim 7, wherein the predetermined condition is whether data reading has been successfully carried out for a predetermined number of times after a data read error was cleared.

10. The disc drive device according to claim 8, wherein the predetermined condition is whether data reading has been successfully carried out for a predetermined number of times after a data read error was cleared.

11. The disc drive device according to claim 7, wherein the predetermined condition is whether data reading has

been successfully carried out for a predetermined period after a data read error was cleared.

12. The disc drive device according to claim 8, wherein the predetermined condition is whether data reading has been successfully carried out for a predetermined period after a data read error was cleared.

13. The disc drive device according to claim 1, wherein the additional information is a recording type bit recorded on a header of a sector that stores the data.

14. A disc drive device supporting at least two types of reading speeds, a high speed and a low speed, capable of driving a DVD-format disc, reading data from the disc by following a read instruction from a host section, and sending the read data to the  
5 host section, the disc drive device comprising:

a determining section operable to determine whether the disc has Real-time data thereon based on specific information stored on the disc;

a managing section operable to set a flag indicating  
10 whether the Real-time data exists based on a determination result from the determining section;

a processing section operable to read, from the disc at one of the reading speeds, the data corresponding to the read

instruction;

15           a storage section operable to temporarily store the  
read data; and

          a sending section operable to send the data stored in  
the storage section to the host section in predetermined playback  
timing, wherein

20           the managing section sets the flag when the determining  
section determines that the disc has the Real-time data thereon,  
and

          when the reading speed is currently the low speed, the  
processing section keeps the reading speed while the flag is set.

15. The disc drive device according to claim 14,  
wherein,

          when the reading speed is currently the high speed, the  
processing section changes the reading speed to the low speed when  
5 the determining section determines, successively for a  
predetermined number of times, that the read data is the Real-time  
data.

16. The disc drive device according to claim 14,  
wherein

          when the reading speed is currently the high speed, the  
processing section changes the reading speed to the low speed when  
5 a data read error occurs.

17. The disc drive device according to claim 14,  
wherein

when the reading speed is currently the high speed, the  
processing section changes the reading speed to the low speed when  
5 a data read error occurs and then a predetermined condition is  
satisfied.

18. The disc drive device according to claim 17,  
wherein

the predetermined condition is whether data reading has  
been carried out for a predetermined number of times.

19. The disc drive device according to claim 17,  
wherein

the predetermined condition is whether data reading has  
been carried out for a predetermined period.

20. The disc drive device according to claim 14,  
wherein

when the reading speed is currently the low speed, the  
processing section changes the reading speed to the high speed  
5 when the flag is not set and a predetermined condition is  
satisfied.

21. The disc drive device according to claim 14,

wherein

when the disc is a DVD-RAM disc and the reading speed is currently the low speed, the processing section changes, under  
5 a predetermined condition, the reading speed to the high speed while a reading head is passing through a gap specified by DVD-RAM specifications, even though the flag is set.

22. The disc drive device according to claim 20,  
wherein

the predetermined condition is whether data reading has been successfully carried out for a predetermined number of times  
5 after a data read error was cleared.

23. The disc drive device according to claim 21,  
wherein

the predetermined condition is whether data reading has been successfully carried out for a predetermined number of times  
5 after a data read error was cleared.

24. The disc drive device according to claim 20,  
wherein

the predetermined condition is whether data reading has been successfully carried out for a predetermined period after  
5 a data read error was cleared.

25. The disc drive device according to claim 21,  
wherein

the predetermined condition is whether data reading has  
been successfully carried out for a predetermined period after  
5 a data read error was cleared.

26. The disc drive device according to claim 14,  
wherein

the specific information is information representing  
whether an SLR bit recorded on a read-in area of the disc  
5 indicates 1.

27. The disc drive device according to claim 14,  
wherein

the specific information is information representing  
whether a DVD\_RTAV directory specified by the UDF format exists  
5 on the disc.

28. The disc drive device according to claim 14,  
wherein

the managing section manages a plurality of flags  
according to the reading speeds, and can individually set the  
5 plurality of flags so that at least one of the reading speeds is  
not changed when the determining section determines that the disc  
has the Real-time data thereon.



29. A disc drive device supporting at least two types of reading speeds, a high speed and a low speed, capable of driving a DVD-format disc, reading data from the disc by following a read instruction from a host section, and sending the read data to the  
5 host section, the disc drive device comprising:

an extracting section operable to extract, from the read instruction coming from the host section, information indicating whether real-time playback is to be carried out;

a processing section operable to read, based on the  
10 extracted information, and from the disc at one of the reading speeds, the data corresponding to the read instruction;

a storage section operable to temporarily store the read data; and

a sending section operable to send the data stored in  
15 the storage section to the host section in predetermined playback timing, wherein

when the reading speed is currently the low speed, the processing section keeps the reading speed while the information indicates that the real-time playback is to be carried out.

30. The disc drive device according to claim 29, wherein

when the reading speed is currently the high speed, the processing section changes the reading speed to the low speed when  
5 the information indicating that the real-time playback is to be

carried out comes successively for a predetermined number of times.

31. The disc drive device according to claim 29,  
wherein

when the reading speed is currently the high speed, the processing section changes the reading speed to the low speed when  
5 a data read error occurs.

32. The disc drive device according to claim 29,  
wherein

when the reading speed is currently the high speed, the processing section changes the reading speed to the low speed when  
5 a data read error occurs and then a predetermined condition is satisfied.

33. The disc drive device according to claim 32,  
wherein

the predetermined condition is whether data reading has been carried out for a predetermined number of times.

34. The disc drive device according to claim 32,  
wherein

the predetermined condition is whether data reading has been carried out for a predetermined period.

35. The disc drive device according to claim 29,  
wherein

when the reading speed is currently the low speed, the  
processing section changes the reading speed to the high speed  
5 when the information does not indicate that the real-time playback  
is to be carried out and a predetermined condition is satisfied.

36. The disc drive device according to claim 29,  
wherein

when the disc is a DVD-RAM disc and the reading speed  
is currently the low speed, the processing section changes, under  
5 a predetermined condition, the reading speed to the high speed  
while a reading head is passing through a gap specified by DVD-RAM  
specifications, even though the information indicates that the  
real-time playback is to be carried out.

37. The disc drive device according to claim 35,  
wherein

the predetermined condition is whether data reading has  
been successfully carried out for a predetermined number of times  
5 after a data read error was cleared.

38. The disc drive device according to claim 36,  
wherein

the predetermined condition is whether data reading has

been successfully carried out for a predetermined number of times  
5 after a data read error was cleared.

39. The disc drive device according to claim 35,  
wherein

the predetermined condition is whether data reading has  
been successfully carried out for a predetermined period after  
5 a data read error was cleared.

40. The disc drive device according to claim 36,  
wherein

the predetermined condition is whether data reading has  
been successfully carried out for a predetermined period after  
5 a data read error was cleared.

41. The disc drive device according to claim 29,  
wherein

when an interface to the host section is ATAPI, a  
streaming bit of a READ12 command is used as the information  
5 indicating whether the real-time playback is to be carried out.